

WE CLAIM:

1. A method for endovascular occlusion of a blood vessel area, comprising:
advancing a catheter percutaneously and transluminally until a distal opening of said catheter is located at a blood vessel area to be occluded;
providing a wire body comprising a front end, a back end, and a section connecting said front end and said back end, wherein said section is substantially straight in an unloaded condition, a length of said section being larger than a diameter of said blood vessel area;
inserting said wire body into a proximal end of said catheter, said catheter thereby loading said wire body into a substantially straight condition;
pushing said wire body forward through said catheter until said front end of said wire body is pushed out of said distal opening of said catheter;
abutting a first wall portion of said blood vessel area with said front end of said wire body, thereby frictionally locking said front end against said first wall portion; and
continuing to push said wire body out of said distal opening of said catheter, thereby curving said section of said wire body toward a second wall portion of said blood vessel area;
wherein said section of said wire body frictionally locks against said second wall portion of said blood vessel area, thereby forming a portion of said wire body crossing said blood vessel area and frictionally locked to said first wall portion and said second wall portion.
2. The method according to claim 1, wherein said blood vessel area to be occluded is an aneurysm.
3. The method according to claim 2, wherein said front end of said wire body is curved in said unloaded condition at least 120° and said back end of said wire body is curved in said unloaded condition at least 120°.

4. The method according to claim 3, further comprising repeating said continuing step until said section of said wire body has assumed a complexly curved shape, whereby said section repeatedly crosses said blood vessel area and frictionally locks against wall portions of said blood vessel area, said section thereby forming curvatures in said complexly curved shape which vary continuously without breakpoints.
5. The method according to claim 1, wherein said blood vessel area to be occluded is a vessel lumen.
6. The method according to claim 5, further comprising retracting said catheter between said abutting and said continuing steps, wherein a free length of said section of said wire body extends between said front end of said wire body and said distal opening of said catheter, said continuing step thereby column loading said section as said wire body is pushed.
7. The method according to claim 6, further comprising repeating said continuing step until said section of said wire body has assumed a complexly curved shape, whereby said section repeatedly crosses said blood vessel area and frictionally locks against wall portions of said blood vessel area, said section thereby forming curvatures in said complexly curved shape which vary continuously without breakpoints.
8. The method according to claim 7, wherein said front end of said wire body in said unloaded condition is formed as a spiral with a decreasing helix diameter in the direction of said front end, a largest helix diameter corresponding generally to said diameter of said blood vessel area, and said length of said section of said wire body being at least six times said diameter of said blood vessel area.
9. The method according to claim 1, further comprising repeating said continuing step until said section of said wire body has assumed a complexly

curved shape, whereby said section repeatedly crosses said blood vessel area and frictionally locks against wall portions of said blood vessel area, said section thereby forming curvatures in said complexly curved shape which vary continuously without breakpoints.

10. The method according to claim 1, wherein said front end of said wire body is curved in said unloaded condition at least 120°.

11. The method according to claim 1, wherein said back end of said wire body is curved in said unloaded condition between 140° and 340°.

12. The method according to claim 1, wherein said length of said section of said wire body is at least 20 mm.

13. The method according to claim 1, wherein said length of said section of said wire body is at least 90 mm.

14. The method according to claim 1, wherein said wire body is made of a thread extending helically around a center line of said wire body.

15. The method according to claim 1, wherein said wire body is further characterized by the absence of occlusion hairs, an inner lumen of said catheter being sized substantially to said wire body.

16. The method according to claim 15, wherein said wire body is made of a thread extending helically around a center line of said wire body.

17. The method according to claim 1, wherein said section of said wire body has a spring constant of $c = P/e$ measured on a 50 mm long portion of said wire body, P being an axially acting applied force measured in N and e being a change of length measured in mm, said spring constant being in the interval of $0.0015 \text{ N/mm} \leq c \leq 0.08 \text{ N/mm}$.

18. The method according to claim 1, wherein said front end of said wire body has a largest external diameter ranging from 2 to 13 mm, said length of said section of said wire body ranges from 30 and 300 mm, and said back end of said wire body has a largest external diameter ranging from 4 to 8 mm.

19. A method for endovascular occlusion of an aneurysm, comprising:
advancing a catheter percutaneously and transluminally until a distal opening
of said catheter is located at an aneurysm to be occluded;

providing a wire body comprising a front end, a back end, and a section
connecting said front end and said back end, said front end and said
back end being curved and said section being substantially straight in
an unloaded condition, a length of said section being larger than a
diameter of said aneurysm, wherein said wire body is made of a thread
extending helically around a center line of said wire body and said wire
body is characterized by the absence of occlusion hairs, an inner
lumen of said catheter being sized substantially to said wire body;

inserting said wire body into a proximal end of said catheter, said catheter
thereby loading said wire body into a substantially straight condition;
pushing said wire body forward through said catheter until said front end of
said wire body is pushed out of said distal opening of said catheter;
abutting a first wall portion of said aneurysm with said front end of said wire
body, thereby frictionally locking said front end against said first wall
portion;

continuing to push said wire body out of said distal opening of said catheter,
thereby curving said section of said wire body toward a second wall
portion of said aneurysm, wherein said section frictionally locks against
said second wall portion, thereby forming a portion of said wire body
crossing said aneurysm and frictionally locked to said first wall portion
and said second wall portion; and

repeating said continuing step until said section of said wire body has
assumed a complexly curved shape, whereby said section repeatedly

crosses said blood vessel area and frictionally locks against wall portions of said aneurysm, said section thereby forming curvatures in said complexly curved shape which vary continuously without breakpoints.

20. A method for endovascular occlusion of a blood vessel lumen, comprising:
- advancing a catheter percutaneously and transluminally until a distal opening of said catheter is located at a blood vessel lumen to be occluded;
 - providing a wire body comprising a front end, a back end, and a section connecting said front end and said back end, said front end in an unloaded condition being formed as a spiral with a decreasing helix diameter in the direction of said front end, a largest helix diameter corresponding to a diameter of said blood vessel lumen, and said section being substantially straight in said unloaded condition, a length of said section being at least six times said diameter of said blood vessel lumen, wherein said wire body is made of a thread extending helically around a center line of said wire body and said wire body is characterized by the absence of occlusion hairs, an inner lumen of said catheter being sized substantially to said wire body;
 - inserting said wire body into a proximal end of said catheter, said catheter thereby loading said wire body into a substantially straight condition;
 - pushing said wire body forward through said catheter until said front end of said wire body is pushed out of said distal opening of said catheter;
 - abutting a first wall portion of said blood vessel lumen with said front end of said wire body, thereby frictionally locking said front end against said first wall portion;
 - retracting said catheter to create a free length of said section of said wire body extending between said front end of said wire body and said distal opening of said catheter, said continuing step thereby column loading said section as said wire body is pushed;

continuing to push said wire body out of said distal opening of said catheter, thereby curving said section of said wire body toward a second wall portion of said blood vessel lumen, wherein said section frictionally locks against said second wall portion, thereby forming a portion of said wire body crossing said blood vessel lumen and frictionally locked to said first wall portion and said second wall portion; and repeating said continuing step until said section of said wire body has assumed a complexly curved shape, whereby said section repeatedly crosses said blood vessel lumen and frictionally locks against wall portions of said blood vessel lumen, said section thereby forming curvatures in said complexly curved shape which vary continuously without breakpoints.